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SOCIETIES AND ACADEMIES.

ENTOMOLOGICAL SOCIETY OF WASHINGTON,
DECEMBER 1, 1889.

UNDER the head of election of officers all of the officers serving during 1898 were re-elected for the year 1899. E. Dwight Sanderson, of College Park, Maryland, was elected an active member.

Under the head of exhibition of specimens and short notes, Mr. Schwarz spoke of the Scolytidæ of Arizona, showing that thirty two species had been collected in southern Arizona by Mr. Hubbard and himself. Nineteen of these species occurred in the pine region; seven in the oak zone, and six in the lowest region. Of the whole number, only ten species proved to be identical with previously described forms, and all but one of the identified species belong to the pine regions.

Dr. A. D. Hopkins, by invitation of the Chair, presented some notes on Scolytidæ with especial reference to habits. He showed the male of *Hypothenomus*, which is relatively of extremely small size and is rare. *H. dissimilis* breeds in dead twigs where the larvæ consume a kind of ambrosia. In the first lot of eggs deposited only one is a male and this apparently is the only male in the number of successive broods developed as a product of a single female. There is, therefore, intense polygamy and in-and-in breeding. Further notes were given on the habits of *Cnesinus strigicollis* and *Pityophthorus minutissimus*. He showed that the larvæ of Scolytids are sometimes killed by not very severe freezing, from which he considered that the remarkable disappearance of *Dendroctonus frontalis* in 1893 was due to the severe freeze of 1892-93. He mentioned a stridulating sound made by *Dendroctonus terebrans* by rubbing the dorsal margin of the last abdominal segment against the inner surface of the elytra near the tips. He recorded the finding of *Dendroctonus simplex* breeding in the American larch in West Virginia at an elevation of 2,600 feet, and concludes that *D. simplex* may yet prove to be distinct from *D. rufipennis*. He further presented some interesting notes on the insect enemies of Scolytidæ.

This communication was discussed by Messrs. Schwarz, Howard, Ashmead and Johnson.

Mr. Ashmead stated that all of the European parasites of *Scolytus rugulosus* have now been found in the United States, the first one, *Chiropachys colon*, having been recognized 20 years ago by Mr. Howard.

Mr. Johnson stated that he had studied *Scolytus rugulosus* in the orchards of Maryland during the past few years. He found that it attacked plums and peaches with great virulence, but he had always noticed that the trees thus attacked had always been damaged in some way either by being barked in process of cultivation or by a branch being broken, or by some unknown cause. He had seen the *Chiropachys colon* in considerable numbers and had observed a curious habit in this insect in that both male and female when about to mate posture before each other vibrating the wings. One orchard of about 600 trees of the Satsuma plum had been extensively infested by *S. rugulosus*. The trees had died from some perfectly obscure cause which neither he nor Mr. Woods, of the Division of Vegetable Pathology, had been able to ascertain, and were immediately attacked in great numbers by the Scolytids.

Dr. Hopkins stated that this beetle will attack for food the buds of perfectly healthy trees, and in this way bring about so great an injury as to induce a breeding attack of the same insect.

This statement was confirmed by Mr. Schwarz, who said that in his opinion the insects of the genus *Scolytus* will attack perfectly healthy trees. He instanced the *Scolytus quadrispinosus* on perfectly healthy hickory trees at Detroit, Mich. These were old but perfectly healthy trees and they were not appreciably damaged by the insect. At Mt. Airy, Ga., he had seen an apparently perfectly healthy peach tree suddenly attacked by this insect for feeding purposes. The feeding punctures can always be distinguished from breeding punctures by the fact that they occur in circular rows.

Mr. Johnson stated that very few of us are able to ascertain what is a perfectly healthy tree, and that he was certain that in his experience some injury, however obscure, preceded attack by this insect.

Mr. Ashmead spoke of and illustrated by diagrams some important structural characters in the Crabronidæ. He had recently devoted

some weeks' study to the insects of this family and called attention to the excellent use which may be made of characters in the mandibles, palpi, antennæ, frontal fovea, clypeus, wings, abdomen, pygidium and legs. He would give generic rank to the sub-genera of Fox and Kohl, and would divide the family into four sub-families. He showed that all of the Fabrician species of *Crabro*, 17 in number, have been placed in other genera, and he finds himself embarrassed to indicate the type of the genus *Crabro*.

L. O. HOWARD,
Secretary.

BIOLOGICAL SOCIETY OF WASHINGTON—298TH
MEETING, DECEMBER 30TH.

PROFESSOR A. D. HOPKINS exhibited some diagrams illustrating a system devised by him for showing in a graphic manner the evolutionary development of families, genera and species.

Mr. Charles L. Pollard discussed 'Floral Asymmetry in *Chamæcrista*,' explaining with the aid of diagrams the peculiar irregularity in the corolla and calyx whereby the banner petal, instead of occupying a normal uppermost position, has undergone a torsion of 90° to the left. This remarkable discovery was made originally by Professor E. L. Greene, who considered that it entitled the *Chamæcristoid Cassias* to rank as a distinct genus. Other generic characters were pointed out by Mr. Pollard.

Mr. Herbert J. Weber spoke of 'The Affinities of *Casuarina*,' discussing the external resemblance of *Casuarina* to *Equisetum* and the very close resemblance to *Ephedra* of the *Gnetaceæ*. The theory of their probable derivation from this group was accepted.

The subject of Chalazogamy in *Casuarina* was discussed somewhat in detail, the speaker taking exception to Nawaschin's theory that Chalazogamy is a primitive type of fecundation from which porogamy has been developed. The principal reasons advanced for thinking Nawaschin in error were:

1. Porogamy is the general type of fecundation in the Angiosperms, and is of special interest, as regards the Monocotyledons, which doubtless had a separate origin from *Casuarina* and other Dicotyledons, but were, neverthe-

less, derived from the Gymnosperms, where uniformly a slightly different type of porogamy from that occurring in the Angiosperms exists. As in the Monocotyledons, porogamy developed from a Gymnospermous type of fecundation, the speaker thought it more reasonable to think that the same type of fecundation had also appeared first in the ancestors of the Dicotyledons.

2. From the universal presence of the micropyle in all Gymnospermous and Angiospermous plants.

3. From the universal location of the egg cell in all Angiosperms in close proximity to the micropyle, instead of the chalaza.

The speaker took the ground that Chalazogamy may probably be looked upon as a degenerate form of fecundation rather than a primitive type.

Mr. O. F. Cook presented a paper entitled 'Four Categories of Species,' in which it was claimed that the general problems of taxonomy are four in number, and that from the standpoint of the work of investigation they may be looked upon as practically distinct. The term species has been employed in treating all four lines, being used (1) for arbitrary section of lines of individual succession, the 'species' of phylogeny and paleontology. (2) The insular or segregated species, the original and still the leading use of the term. (3) The incipient species, more properly called the subspecies. (4) The artificially selected or hybridized 'species'. It was insisted that the fact of segregation is capable of establishment by sufficiently careful and extended observation; that it gives our most important clew to the present tendencies of evolution, and that the term 'species' should be restricted to naturally segregated groups of individuals.

F. A. LUCAS,
Secretary.

THE NEW YORK SECTION OF THE AMERICAN
CHEMICAL SOCIETY.

THE local Section held its regular meeting at the College of the City of New York on the 9th inst., Dr. William McMurtrie presiding, and ninety-five members and visitors were present. An unusually long and interesting pro-

gram was announced, of which the following papers were read :

'Preliminary Note on proposed Patent Legislation in its Relation to American Chemists,' C. C. Parsons.

'Atomic Weights as a Cyclic Function,' Thomas Bayley, England.

'Recent Progress in Photo-Chemistry,' L. H. Friedburg.

'The Commercial Electrolysis of Salt in the United States,' H. Carmichael.

'Notes on the Electrolysis of Salt,' J. D. Pennock.

On motion the Chair was authorized to appoint a committee of three to consider what action should be taken on proposed patent legislation.

The Chairman reported that the Chemists' Club had been duly organized and the rooms leased, and it was expected that all necessary furnishing would be completed in time for the meeting of the general Society in the Holiday week.

The announcement was made that the membership of the Section has passed the 300 mark, which, in accordance with the provisions of the new constitution, allows the Section four representatives on the Council.

The Secretary was, therefore, directed by unanimous vote to cast a ballot electing the following gentlemen to represent the Society: William McMurtrie, A. A. Breneman, C. A. Doremus and A. H. Sabin; and in the event of any of these being elected Councillors-at-Large, Durand Woodman, J. B. F. Herreshoff, E. G. Love, E. E. Smith, Geo. C. Stone and C. B. Voorhees as alternates in the order named.

The Executive Committee decided to postpone the next regular meeting of the Section to Friday, January 13th, to avoid following the midwinter meeting too closely. The General Secretary reports a number of papers already promised for the midwinter meeting, and all arrangements progressing favorably.

DURAND WOODMAN,
Secretary.

NEW YORK ACADEMY OF SCIENCES—SECTION OF
PSYCHOLOGY AND ANTHROPOLOGY.

THE Section of Psychology and Anthropology

of the Academy is now in its third year. Six meetings have been arranged for the current season. The Section meets on the fourth Monday evening of the month at 12 West 31st Street.

At the first meeting, which was held October 24th, Professor Cattell presented a paper upon anthropological tests and instruments, outlining the advance which has been made in methods and apparatus in the psychological measurements of Columbia students.

Reports of summer field work in anthropology were made by Dr. M. H. Saville and Dr. Carl Lumholtz, speaking of work in Mexico, and by Dr. Farrand and Mr. Harlan I. Smith, whose work was on the Northwest coast, principally in Washington.

The program of the second meeting, November 28th, included a paper by E. G. Dexter, on 'The Influence of the Weather on the Mental Activities of Children,' and one by Geo. V. Dearborn, on 'Involuntary Reactions to Pleasant and Unpleasant Stimuli.' Anthropological papers were contributed by Stansbury Hagar, on 'The Water Burial,' and by A. Kroeber, on 'The Eskimos of Cumberland Sound.'

C. B. BLISS,
Secretary.

HARVARD UNIVERSITY: STUDENTS' GEOLOGICAL
CLUB, NOVEMBER 22, 1898.

MR. H. F. KENDALL offered an explanation for the formation of an over-hanging, rock cliff on the eastern flank of Mt. Passaconaway, N. H. Mr. H. T. Burr traced the evolution of explanations for the 'Origin of Eskers,' and concluded that this form of ice records is of sub-glacial origin.

Geological Conference, November 29, 1898.—Dr. R. A. Daly presented results obtained in connection with an attempt to express, mathematically and graphically, the optical characters of the vertical zone of amphiboles and pyroxenes. A formula was deduced, which showed the variation in the extinction-angle (read against the cleavage-trace) characteristic of a plane revolved in the vertical zone from the position (010) to the position (100). This formula is a special case of Michel Lévy's general expression for the extinction in any zone.

By successive applications of the formula, curves were constructed for negative amphiboles on rectangular coordinates, in which the ordinate indicates the value of the extinction-angle on (010), and the abscissa the amount of rotation of the 'plan mobile,' out of the plane of symmetry toward the orthopinacoid. These curves were plotted for amphiboles in which the optical angle is 50° , 60° , 70° , 80° , and the extinction-angle on (010), in each case, 10° , 15° or 20° . To these were added the analogous curves for $2V=90^\circ$. The last were unlike the former in that they showed no maximum value of extinction between (010) and (100). When the optical angle is small, the maximum extinction may be found to be in a plane far removed from (010), contrary to the statement of Zirkel that the maximum must always lie in the plane of symmetry.

Secondly, a method for determining the extinction-angle of amphiboles and pyroxenes (010) was proposed. The object of this new method is to avoid cutting oriented sections, as this operation is manifestly impossible with many rock-forming varieties.

'Two Remarkable Explosions in the New York Oil District' were described by Mr. L. LaForge. On March 1, 1898, three hundred quarts of nitro-glycerine exploded in a magazine, about one mile east of Wellsville, N. Y. Structures in that village suffered much damage; chimney-tops fell and windows were broken inward. One week later, six hundred quarts of nitro-glycerine exploded in the new magazine on the same spot. In this case no serious damage to buildings in the village resulted, although the report and shock of the explosion extended much farther. When the former explosion took place the ground was frozen, but before the latter occurred it had thawed out. It is to this fact that the people of Wellsville attribute the difference between the results of the two explosions.

J. M. BOUTWELL,
Recording Secretary.

THE ACADEMY OF SCIENCE OF ST. LOUIS.

At the meeting of the Academy of Science of St. Louis on the evening of December 5, 1898, Mr. H. von Schrenk presented by title a

paper 'On the Mode of Dissemination of *Usnea barbata*,' and Professor L. H. Pammel presented by title a paper on 'The Histology of the Caryopsis and Endosperm of some Grasses.'

Dr. Theo. Kodis presented the results of some experiments on overcooling animal and vegetable tissues, in which it was shown that, as water may, under favorable conditions, be cooled to some distance below zero, Centigrade, without freezing—the temperature immediately rising to the freezing point the moment that freezing begins, and remaining there until the water is entirely solidified, then beginning once more to drop—so, when animal and vegetable tissues are experimented on, they may be cooled to a temperature decidedly lower than the freezing point, under favorable conditions, before freezing begins, but that, when it begins, the temperature at once rises to the freezing point (which is always somewhat lower than that of pure water), remaining there until the process of freezing is complete, when it once more begins to fall. The speaker gave a short account of the current theories as to the mechanical constitution of protoplasm, and discussed the bearing on them of the phenomena when the solidification of overcooled tissues began.

WILLIAM TRELEASE,
Recording Secretary.

NEW BOOKS.

- Aperçus de taxonomie générale.* J. P. DURAND. Paris, Felix Alcan. 1899. Pp. 265. 5 fr.
- Natalité et Démocratie.* ARSÈNE DUMONT. Paris, Schleicher Frères. 1898. Pp. 230.
- Catalogus Mammalium tam viventium quam fossilium.* E. L. TROUSSART. Berlin, R. Friedländer und Sohn. 1898. Fasciculus IV. and V. Pp. 665–1264. 26 Marks.
- Principles of Biology.* HERBERT SPENCER. New York, D. Appleton & Co. 1898. Revised and Enlarged Edition. Vol. I. Pp. x + 706. \$2.00.
- Degeneracy.* EUGENE S. TALBOT. London, Walter Scott, Ltd.; New York, Charles Scribner's Sons. 1898. Pp. xvi + 37. \$1.50
- Psychologie der Veränderungsauffassung.* L. WILLIAM STERN. Breslau, Preuss und Yünger. 1898. Pp. viii + 264.